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Current Trends

Queens Boulevard Pedestrian Safety Project — New York City

To address the problem of pedestrian injuries, the Safety Division of the New York City Department of Transportation established an Urban Pedestrian Safety Strategy in 1985. The strategy called for the collection, mapping, and analysis of collision data to identify hazardous sites and develop interventions. The Queens Boulevard Pedestrian Safety Project, an example of the application of this strategy, focused on fatal injuries to pedestrians. For this project, 1980–1984 data were examined from investigation reports of a special police unit that responded within 1 hour to calls from local police precincts when a severe pedestrian injury occurred. If a pedestrian fatality had already occurred or the physician providing emergency medical care determined that the victim was not likely to survive, the investigators collected information about the injury circumstances, vehicle characteristics, and persons involved. Using this information, the Department of Transportation identified factors associated with risk of pedestrian fatalities at Queens Boulevard and planned interventions to improve safety at this site.

Queens Boulevard is the widest street (175–225 feet) in New York City. More than 60,000 vehicles traverse its 12 traffic lanes daily. Spot mapping of 1980–1984 police data identified a geographic cluster of 22 deaths and 18 likely fatalities along a 2.5-mile length of the street. Age was known for 36 (90%) of the 40 injured pedestrians; pedestrians injured along Queens Boulevard were older than pedestrians injured in the entire city (Figure 1). All 20 fatally injured pedestrians for whom ages were known were ≥ 60 years old.

Because many of the fatalities occurred in older pedestrians crossing the street, the following interventions were implemented: 1) modification of stop light signals to increase pedestrian crossing time; 2) roadway markings to emphasize pedestrian crosswalks, traffic lanes, and the direction of traffic flow; 3) pedestrian signals on median islands; 4) oversized speed limit signs and increased police enforcement of the speed limit; and 5) safety education presentations at senior citizen centers. The estimated cost of these interventions was \$150,000.

Pedestrian Safety — Continued

Based on the average daily motor vehicle traffic volume on the Queensboro Bridge, the average daily traffic volume on Queens Boulevard may have increased by 19% in the 2 years after the interventions when compared with traffic volume during the 5 years preceding the interventions. Despite these increases in volume, the annual occurrence of fatal and likely fatal pedestrian injuries decreased substantially after the interventions (43% and 86%, respectively) (Figure 2). Citywide occurrence of fatal pedestrian injuries decreased by only 4% over the same period.

FIGURE 1. Percentage of fatal and likely fatal injuries among pedestrians, by age group — New York City, 1980–1984

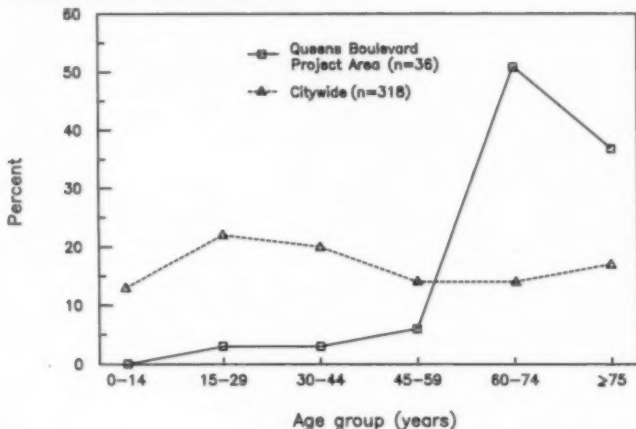
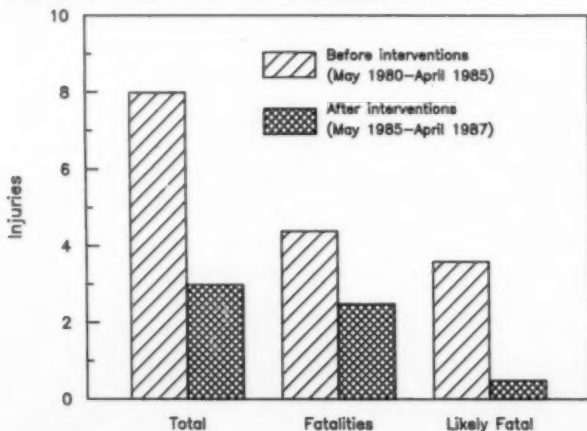


FIGURE 2. Average annual number of fatal and likely fatal injuries among pedestrians — Queens Boulevard Project Area, May 1980–April 1987



Pedestrian Safety — Continued

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Editorial Note: Despite a slight decline in the rate of pedestrian fatalities associated with motor vehicle collisions over the past decade, over 7000 such deaths still occur each year in the United States (1). An estimated 80,000 nonfatal pedestrian injuries occurred during 1986 (2). Pedestrian fatalities accounted for an estimated 15% of all 1986 traffic fatalities and 23% of urban traffic fatalities (3). Pedestrian deaths represent an even greater proportion of traffic fatalities in the most densely populated urban areas. In New York City, for example, 314 (52%) of 610 traffic fatalities in 1987 were among pedestrians (4).

Motor vehicle traffic control traditionally has focused on optimization of traffic flow and, more recently, conservation of fuel. In general, safety concerns, particularly pedestrian safety, have received less emphasis. For example, to reduce fuel consumption, all states in the United States had adopted traffic laws allowing right turns on red lights by the end of the 1970s. These right turns, however, appear to have increased police-reported collision rates, particularly for elderly pedestrians in urban areas (5). An additional impediment to intervention is the public perception of such injuries as "accidents"—unavoidable by-products of motor vehicle travel—rather than "injuries," for which preventive measures can be taken. Furthermore, there has been a tendency to blame pedestrian injury on pedestrian negligence (6,7), yet drivers and environmental conditions play an important role and cannot be excluded from the injury prevention equation (8).

The Queens Boulevard Pedestrian Safety Project demonstrates how focusing on injury prevention and incorporating resources not traditionally involved in public health can substantially improve safety with little effort or expense. Studies indicate that pedestrian injuries have their greatest impact on the very young, the very old, and the intoxicated (3,6–13). By recognizing Queens Boulevard as a street segment with an unusually large number of pedestrian injuries and identifying the elderly as the primary population at risk, traffic engineers and others devised interventions focusing primarily on disabilities of vision and agility in the elderly. This project suggests that pedestrian injuries may be prevented with interventions involving engineering, enforcement, education, legislation, and zoning. With a multidisciplinary approach and safety as a priority, public health officials, traffic planners, law enforcement officials, and other public safety workers can continue to take steps to reduce fatalities on U.S. roads.

References

1. National Center for Health Statistics. Vital statistics mortality data, multiple cause of death detail [machine-readable public-use data file]. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service (annual).
2. National Safety Council. Accident facts: 1987 edition. Chicago: National Safety Council, 1987.
3. National Highway Traffic Safety Administration. Fatal Accident Reporting System 1986. Washington, DC: US Department of Transportation, National Highway Traffic Safety Administration, 1988; DOT publication no. (HS)807-245.
4. New York City Department of Transportation. Traffic fatalities in New York City: 1987. New York: New York City Department of Transportation, Bureau of Planning and Research, 1988.
5. Zador P, Moshman J, Marcus L. Adoption of right turn on red: effects on crashes at signalized intersections. *Accid Anal Prev* 1982;14:219–34.
6. Solheim K. Pedestrian deaths in Oslo traffic accidents. *Br Med J* 1964;1:81–3.

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7. McCarroll JR, Braunstein PW, Cooper W, et al. Fatal pedestrian automotive accidents. *JAMA* 1962;180:127-33.
8. Baker SP, Robertson LS, O'Neill B. Fatal pedestrian collisions: driver negligence. *Am J Public Health* 1974;64:318-25.
9. Allard R. Excess mortality from traffic accidents among elderly pedestrians living in the inner city. *Am J Public Health* 1982;72:853-4.
10. Baker SP. The man in the street: a tale of two cities [Commentary]. *Am J Public Health* 1975;65:524-5.
11. Haddon W Jr, Valien R, McCarroll JR, Umberger CJ. A controlled investigation of the characteristics of adult pedestrians fatally injured by motor vehicles in Manhattan. *J Chronic Dis* 1961;14:655-78.
12. Mueller BA, Rivara FP, Bergman AB. Factors associated with pedestrian-vehicle collision injuries and fatalities. *West J Med* 1987;146:243-5.
13. Tanz RR, Christoffel KK. Pedestrian injury: the next motor vehicle injury challenge. *Am J Dis Child* 1985;139:1187-90.

Recommendations of the Immunization
Practices Advisory Committee

Pneumococcal Polysaccharide Vaccine

These recommendations update the last statement by the Immunization Practices Advisory Committee (ACIP) on pneumococcal polysaccharide vaccine (MMWR 1984; 33:273-6, 281) and include new information regarding 1) vaccine efficacy, 2) use in persons with human immunodeficiency virus (HIV) infection and in other groups at increased risk of pneumococcal disease, and 3) guidelines for revaccination.

INTRODUCTION

Disease caused by *Streptococcus pneumoniae* (pneumococcus) remains an important cause of morbidity and mortality in the United States, particularly in the very young, the elderly, and persons with certain high-risk conditions. Pneumococcal pneumonia accounts for 10%-25% of all pneumonias and an estimated 40,000 deaths annually (1). Although no recent data from the United States exist, in the United Kingdom pneumococcal infections may account for 34% of pneumonias in adults who require hospitalization (2). The best estimates of the incidence of serious pneumococcal disease in the United States are based on surveys and community-based studies of pneumococcal bacteremia. Recent studies suggest annual rates of bacteremia of 15-19/100,000 for all persons, 50/100,000 for persons ≥ 65 years old, and 160/100,000 for children ≤ 2 years old (3,4). These rates are 2-3 times those previously documented in the United States. The overall rate for pneumococcal bacteremia in some Native American populations can be six times the rate of the general population (5). The incidence of pneumococcal pneumonia can be 3-5 times that of the detected rates of bacteremia. The estimated incidence of pneumococcal meningitis is 1-2/100,000 persons.

Mortality from pneumococcal disease is highest in patients with bacteremia or meningitis, patients with underlying medical conditions, and older persons. In some high-risk patients, mortality has been reported to be $>40\%$ for bacteremic disease and 55% for meningitis, despite appropriate antimicrobial therapy. Over 90% of pneumococci remain very sensitive to penicillin.

ACIP: Pneumococcal Polysaccharide - Continued

In addition to the very young and persons ≥ 65 years old, patients with certain chronic conditions are at increased risk of developing pneumococcal infection and severe pneumococcal illness. Patients with chronic cardiovascular diseases, chronic pulmonary disease, diabetes mellitus, alcoholism, and cirrhosis are generally immunocompetent but have increased risk. Other patients at greater risk because of decreased responsiveness to polysaccharide antigens or more rapid decline in serum antibody include those with functional or anatomic asplenia (e.g., sickle cell disease or splenectomy), Hodgkin's disease, lymphoma, multiple myeloma, chronic renal failure, nephrotic syndrome, and organ transplantation. In a recent population-based study, all persons 55-64 years old with pneumococcal bacteremia had at least one of these chronic conditions (4). Studies indicate that patients with acquired immunodeficiency syndrome (AIDS) are also at increased risk of pneumococcal disease, with an annual attack rate of pneumococcal pneumonia as high as 17.9/1000 (6-8). This observation is consistent with the B-cell dysfunction noted in patients with AIDS (9,10). Recurrent pneumococcal meningitis may occur in patients with cerebrospinal fluid leakage complicating skull fractures or neurologic procedures.

PNEUMOCOCCAL POLYSACCHARIDE VACCINE

The current pneumococcal vaccine (Pneumovax[®] 23, Merck Sharp & Dohme, and Pnu-Imune[®] 23, Lederle Laboratories) is composed of purified capsular polysaccharide antigens of 23 types of *S. pneumoniae* (Danish types 1, 2, 3, 4, 5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19F, 19A, 20, 22F, 23F, 33F). It was licensed in the United States in 1983, replacing a 14-valent vaccine licensed in 1977. Each vaccine dose (0.5 mL) contains 25 μ g of each polysaccharide antigen. The 23 capsular types in the vaccine cause 88% of the bacteremic pneumococcal disease in the United States. In addition, studies of the human antibody response indicate that cross-reactivity occurs for several types (e.g., 6A and 6B) that cause an additional 8% of bacteremic disease (11).

Most healthy adults, including the elderly, show a twofold or greater rise in type-specific antibody, as measured by radioimmunoassay, within 2-3 weeks of vaccination. Similar antibody responses have been reported in patients with alcoholic cirrhosis and diabetes mellitus requiring insulin. In immunocompromised patients, the response to vaccination may be less. In children <2 years old, antibody response to most capsular types is generally poor. In addition, response to some important pediatric pneumococcal types (e.g., 6A and 14) is decreased in children <5 years old (12,13).

Following vaccination of healthy adults with polyvalent pneumococcal vaccine, antibody levels for most pneumococcal vaccine types remain elevated at least 5 years; in some persons, they fall to prevaccination levels within 10 years (14,15). A more rapid decline in antibody levels may occur in children. In children who have undergone splenectomy following trauma and in those with sickle cell disease, antibody titers for some types can fall to prevaccination levels 3-5 years after vaccination (16,17). Similar rates of decline can occur in children with nephrotic syndrome (18).

Patients with AIDS have been shown to have an impaired antibody response to pneumococcal vaccine (10,19). However, asymptomatic HIV-infected men or those with persistent generalized lymphadenopathy respond to the 23-valent pneumococcal vaccine (20).

ACIP: *Pneumococcal Polysaccharide* — Continued**VACCINE EFFICACY**

In the 1970s, pneumococcal vaccine was shown to reduce significantly the occurrence of pneumonia in young, healthy populations in South Africa and Papua New Guinea, where incidence of pneumonia is high (21,22). It was also demonstrated to protect against systemic pneumococcal infection in hyposplenic patients in the United States (23). Since then, studies have attempted to assess vaccine efficacy in other U.S. populations (24–30; CDC, unpublished data) (Table 1). A prospective, ongoing case-control study in Connecticut has shown an overall protective efficacy of 61% against pneumococcal bacteremia caused by vaccine- and vaccine-related serotypes. The protective efficacy was 60% for patients with alcoholism or chronic pulmonary, cardiac, or renal disease and 64% for patients ≥ 55 years old without other high-risk chronic conditions (25,26). In another multicenter case-control study, vaccine efficacy in immunocompetent persons ≥ 55 years old was 70% (27). A smaller case-control study of veterans failed to show efficacy in preventing pneumococcal bacteremia (28), but determination of the vaccination status was judged to be inadequate and the selection of controls was considered to be potentially biased.

Studies based on CDC's pneumococcal surveillance system suggest an efficacy of 60%–64% for vaccine-type strains in patients with bacteremic disease. For all persons ≥ 65 years of age (including persons with chronic heart disease, pulmonary disease, or diabetes mellitus), vaccine efficacy was 44%–61% (29; CDC, unpublished data). In addition, estimates of vaccine efficacy for serologically related types were 29%–66% (29). Limited data suggest that clinical efficacy may decline ≥ 6 years after vaccination (CDC, unpublished data).

A randomized, double-blind, placebo-controlled trial among high-risk veterans showed no vaccine efficacy against pneumococcal pneumonia or bronchitis (30);

TABLE 1. Clinical effectiveness of pneumococcal vaccination in U.S. populations

Location	Method	No. persons	Type infection	Vaccine efficacy (%)	95% C.I.
Connecticut (25,26)	Case-control*	543 cases 543 controls	VT†, VT-related	61	42, 73
Philadelphia (27)	Case-control*	122 cases 244 controls	All serotypes	70	37, 86
Denver (28)	Case-control*	89 cases 89 controls	All serotypes	–21	–221, 55
CDC-1 (29)	Epidemiologic*	249 vaccinated 1638 unvaccinated	VT	64	47, 76
CDC-2 (unpublished)	Epidemiologic*	240 vaccinated 1527 unvaccinated	VT	60	45, 70
VA cooperative study (30)	Randomized controlled trial‡	1145 vaccinated 1150 controls	All serotypes VT	–34§ –19§	–119, 18† –164, 47†

*Only patients with isolates from normally sterile body sites were included.

†Vaccine-type pneumococcal infection.

‡Pneumococcal pneumonia and bronchitis were diagnosed primarily by culture of respiratory secretions.

§Values calculated from the published data.

ACIP: Pneumococcal Polysaccharide — Continued

however, case definitions used were judged to have uncertain specificity. In addition, this study had only a 6% ability to detect a vaccine efficacy of 65% for pneumococcal bacteremia (31). In contrast, a French clinical trial found pneumococcal vaccine to be 77% effective in reducing the incidence of pneumonia in nursing home residents (32).

Despite conflicting findings, the data continue to support the use of the pneumococcal vaccine for certain well-defined groups at risk.

RECOMMENDATIONS FOR VACCINE USE**Adults**

1. Immunocompetent adults who are at increased risk of pneumococcal disease or its complications because of chronic illnesses (e.g., cardiovascular disease, pulmonary disease, diabetes mellitus, alcoholism, cirrhosis, or cerebrospinal fluid leaks) or who are ≥ 65 years old.
2. Immunocompromised adults at increased risk of pneumococcal disease or its complications (e.g., persons with splenic dysfunction or anatomic asplenia, Hodgkin's disease, lymphoma, multiple myeloma, chronic renal failure, nephrotic syndrome, or conditions such as organ transplantation associated with immunosuppression).
3. Adults with asymptomatic or symptomatic HIV infection.

Children

1. Children ≥ 2 years old with chronic illnesses specifically associated with increased risk of pneumococcal disease or its complications (e.g., anatomic or functional asplenia [including sickle cell disease], nephrotic syndrome, cerebrospinal fluid leaks, and conditions associated with immunosuppression).
2. Children ≥ 2 years old with asymptomatic or symptomatic HIV infection.
3. The currently available 23-valent vaccine is **not** indicated for patients having only recurrent upper respiratory tract disease, including otitis media and sinusitis.

Special Groups

Persons living in special environments or social settings with an identified increased risk of pneumococcal disease or its complications (e.g., certain Native American populations).

ADVERSE REACTIONS

Approximately 50% of persons given pneumococcal vaccine develop mild side effects, such as erythema and pain at the injection site. Fever, myalgia, and severe local reactions have been reported in $<1\%$ of those vaccinated. Severe systemic reactions, such as anaphylaxis, rarely have been reported.

PRECAUTIONS

The safety of pneumococcal vaccine for pregnant women has not been evaluated. Ideally, women at high risk of pneumococcal disease should be vaccinated before pregnancy.

TIMING OF VACCINATION

When elective splenectomy is being considered, pneumococcal vaccine should be given at least 2 weeks before the operation, if possible. Similarly, for planning cancer chemotherapy or immunosuppressive therapy, as in patients who undergo organ transplantation, the interval between vaccination and initiation of chemotherapy or immunosuppression should also be at least 2 weeks.

ACIP: *Pneumococcal Polysaccharide* — Continued

REVACCINATION

In one study, local reactions after revaccination in adults were more severe than after initial vaccination when the interval between vaccinations was 13 months (33) (Table 2 [p. 73]). Reports of revaccination after longer intervals in children and adults, including a large group of elderly persons revaccinated at least 4 years after primary vaccination, suggest a similar incidence of such reactions after primary vaccination and revaccination (unpublished data; 17,34-38).

Without more information, persons who received the 14-valent pneumococcal vaccine should not be routinely revaccinated with the 23-valent vaccine, as increased coverage is modest and duration of protection is not well defined. However, revaccination with the 23-valent vaccine should be strongly considered for persons who received the 14-valent vaccine if they are at highest risk of fatal pneumococcal infection (e.g., asplenic patients). Revaccination should also be considered for adults at highest risk who received the 23-valent vaccine ≥ 6 years before and for those

(Continued on page 73)

TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	5th Week Ending			Cumulative, 5th Week Ending		
	Feb. 4, 1989	Feb. 6, 1988	Median 1984-1988	Feb. 4, 1989	Feb. 6, 1988	Median 1984-1988
Acquired Immunodeficiency Syndrome (AIDS)	600	U*	204	2,714	2,710	1,061
Aseptic meningitis	77	77	77	329	379	385
Encephalitis: Primary (arthropod-borne & unspc)	6	16	18	35	73	75
Post-infectious	1	1	1	6	6	6
Gonorrhea: Civilian	10,318	14,075	15,396	54,979	68,019	80,653
Military	221	288	268	935	1,101	1,679
Hepatitis: Type A	571	598	448	2,640	1,941	1,941
Type B	339	405	465	1,536	1,560	2,004
Non A, Non B	40	51	56	180	189	283
Unspecified	40	39	69	185	169	365
Legionellosis	13	14	14	54	68	68
Leprosy	2	4	1	7	8	16
Malaria	27	8	13	78	45	55
Measles: Total [†]	20	24	24	133	106	112
Indigenous	12	16	19	118	96	91
Imported	8	8	8	15	10	21
Meningococcal infections	55	63	71	210	306	273
Mumps	91	135	61	435	390	301
Pertussis	11	36	24	159	106	129
Rubella (German measles)	1	6	2	15	19	21
Syphilis (Primary & Secondary): Civilian	632	784	616	3,011	3,299	2,649
Military	3	5	3	24	19	17
Toxic Shock syndrome	4	7	9	20	25	28
Tuberculosis	313	355	361	1,494	1,348	1,365
Typhoid fever	10	8	4	25	30	24
Typhus fever, tick-borne (RMSF)	2	-	1	8	6	6
Rabies, animal	61	55	71	295	238	318

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1989		Cum. 1989
Anthrax	-	Leptospirosis (Hawaii 1)	12
Botulism: Foodborne	-	Plague	-
Infant (N. Mex. 1)	1	Poliomyelitis, Paralytic	-
Other (Oreg. 1)	1	Psittacosis (Oreg. 1)	7
Brucellosis (S. Dak. 1)	1	Rabies, human	-
Cholera	-	Tetanus	5
Congenital rubella syndrome	-	Trichinosis	-
Congenital syphilis, ages <1 year	-		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.

[†]Eight of the 20 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending February 4, 1989 and February 6, 1988 (5th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel- losis	Leprosy
			Primary	Post-In- fectious			A	B	NA,NB	Unspeci- fied		
	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	2,714	329	35	6	54,979	68,019	2,640	1,536	180	185	54	7
NEW ENGLAND	150	21	-	-	1,866	1,952	73	111	15	10	4	1
Maine	11	1	-	-	32	42	2	7	2	-	-	-
N.H.	3	1	-	-	16	38	17	8	3	1	-	-
Vt.	2	-	-	-	8	17	2	3	2	-	-	-
Mass.	71	10	-	-	707	630	32	71	5	8	3	1
R.I.	7	4	-	-	141	110	1	18	2	1	1	-
Conn.	56	5	-	-	962	1,115	19	4	1	-	-	-
MID. ATLANTIC	784	25	1	-	4,195	9,880	498	289	20	23	15	1
Upstate N.Y.	133	18	1	-	945	1,152	141	72	8	2	4	-
N.Y. City	336	7	-	-	-	4,250	14	58	2	13	-	-
N.J.	247	-	-	-	1,141	1,406	66	71	5	5	-	-
Pa.	68	-	-	-	2,109	3,072	277	88	5	3	11	1
E.N. CENTRAL	323	50	15	-	10,790	11,130	135	159	11	2	13	-
Ohio	18	17	5	-	3,229	2,561	58	65	2	-	10	-
Ind.	60	5	2	-	696	765	3	12	-	-	1	-
Ill.	145	1	-	-	3,313	3,234	20	5	-	-	-	-
Mich.	68	26	7	-	3,216	3,687	48	64	8	2	1	-
Wis.	12	1	1	-	336	883	6	13	1	-	1	-
W.N. CENTRAL	59	15	-	-	2,631	2,644	50	34	5	2	2	-
Minn.	-	2	-	-	278	363	8	7	-	2	-	-
Iowa	12	5	-	-	200	232	8	3	2	-	-	-
Mo.	36	3	-	-	1,580	1,501	16	15	1	-	-	-
N. Dak.	1	1	-	-	8	25	-	2	-	-	-	-
S. Dak.	2	-	-	-	27	51	-	2	2	-	-	-
Nebr.	1	1	-	-	219	157	4	-	-	-	2	-
Kans.	7	3	-	-	309	315	19	5	-	-	-	-
S. ATLANTIC	456	75	4	2	17,426	17,597	196	281	18	29	9	-
Del.	16	4	-	-	284	273	7	13	-	-	-	-
Md.	53	10	-	-	1,409	1,564	48	67	4	7	4	-
D.C.	42	-	-	-	1,147	970	-	-	-	-	-	-
Va.	26	18	1	-	1,545	1,495	7	28	2	16	1	-
W. Va.	1	2	2	-	174	180	5	3	-	-	-	-
N.C.	1	13	-	1	2,764	2,316	61	94	11	-	3	-
S.C.	16	2	-	-	1,978	1,310	3	26	-	2	-	-
Ga.	100	4	-	-	3,104	3,629	34	15	-	2	1	-
Fla.	201	22	1	1	5,041	5,860	30	35	1	2	-	-
E.S. CENTRAL	47	36	2	-	5,020	5,443	34	149	21	1	4	-
Ky.	10	10	1	-	430	458	13	37	7	-	1	-
Tenn.	-	7	-	-	1,694	1,525	8	74	6	-	2	-
Ala.	26	18	1	-	1,584	2,197	9	37	8	1	1	-
Miss.	11	1	-	-	1,302	1,263	4	1	-	-	-	-
W.S. CENTRAL	205	8	4	-	5,742	8,641	157	50	10	12	4	-
Ark.	6	-	-	-	685	636	11	2	-	-	-	-
La.	35	2	1	-	1,025	2,599	8	6	-	-	-	-
Okl.	-	5	3	-	726	604	51	17	4	1	4	-
Tex.	164	1	-	-	3,306	4,802	87	25	6	11	-	-
MOUNTAIN	82	12	1	-	1,180	1,420	487	94	22	26	1	-
Mont.	-	-	-	-	19	35	4	11	-	-	-	-
Idaho	1	-	-	-	24	32	26	6	-	-	-	-
Wyo.	3	-	-	-	9	16	5	1	-	-	-	-
Colo.	36	2	-	-	118	371	60	8	4	14	-	-
N. Mex.	-	2	-	-	109	159	48	17	3	1	-	-
Ariz.	4	6	-	-	435	484	247	29	4	8	1	-
Utah	8	2	1	-	58	65	34	7	6	3	-	-
Nev.	30	-	-	-	388	258	63	15	5	-	-	-
PACIFIC	608	87	8	4	6,149	9,312	1,011	369	58	80	2	5
Wash.	62	-	-	-	219	654	100	23	5	1	-	-
Oreg.	26	-	-	-	276	323	150	25	6	-	-	-
Calif.	519	84	6	4	5,497	8,097	627	315	46	77	2	5
Alaska	-	-	2	-	129	121	116	5	1	2	-	-
Hawaii	1	3	-	-	28	117	18	1	-	-	-	-
Guam	-	-	-	-	-	13	-	-	-	-	-	-
P.R.	103	9	-	-	51	154	4	10	-	2	-	-
V.I.	15	-	-	-	39	34	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	8	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	4	-	-	-	-	-	-

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 4, 1989 and February 6, 1988 (5th Week)

Reporting Area	Malaria	Measles (Rubella)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total		1989	Cum. 1989	1989	Cum. 1989	Cum. 1989	1989	Cum. 1989	Cum. 1989
		Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1989								
UNITED STATES	78	12	118	8	15	106	210	91	435	11	159	106	1	15	19
NEW ENGLAND	5	-	-	-	-	1	16	-	2	2	11	14	-	-	-
Maine	-	-	-	-	-	-	3	-	-	2	4	1	-	-	-
N.H.	-	-	-	-	-	-	4	-	2	-	5	11	-	-	-
Vt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mass.	3	-	-	-	-	1	7	-	-	-	-	-	-	-	-
R.I.	2	-	-	-	-	-	1	-	-	-	2	-	-	-	-
Conn.	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-
MID. ATLANTIC	11	1	3	8	9	23	21	2	13	2	18	5	-	1	-
Upstate N.Y.	5	-	-	-	-	-	12	-	-	2	4	2	-	1	-
N.Y. City	3	1	2	8†	8	4	2	-	-	-	-	-	-	-	-
N.J.	-	-	-	-	1	-	-	-	7	-	13	1	-	-	-
Pa.	3	-	1	-	-	19	7	2	6	-	1	2	-	-	-
E.N. CENTRAL	8	-	44	-	2	1	25	5	33	1	8	11	-	-	8
Ohio	3	-	44	-	-	-	15	-	8	-	1	2	-	-	-
Ind.	1	-	-	-	-	-	-	2	2	-	3	-	-	-	-
Ill.	2	-	-	-	-	1	3	-	2	-	-	-	-	-	8
Mich.	-	-	-	-	-	-	4	3	20	1	3	4	-	-	-
Wis.	2	-	-	-	1	-	3	-	1	-	1	2	-	-	-
W.N. CENTRAL	-	-	10	-	-	-	6	2	105	1	3	13	-	-	-
Minn.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Iowa	-	-	-	-	-	-	-	-	8	1	3	3	-	-	-
Mo.	-	-	10	-	-	-	-	1	32	-	-	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
S. Dak.	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-
Nebr.	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Kans.	-	-	-	-	-	-	1	1	80	-	-	1	-	-	-
S. ATLANTIC	18	-	2	-	1	2	42	21	72	1	3	14	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Md.	4	-	2	-	1	1	7	19	46	1	1	-	-	-	-
D.C.	-	-	-	-	-	-	4	-	2	-	-	-	-	-	-
Va.	2	-	-	-	-	-	4	-	16	-	1	1	-	-	-
W. Va.	1	-	-	-	-	-	2	1	3	-	-	-	-	-	-
N.C.	9	-	-	-	-	1	9	-	2	-	1	8	-	-	-
S.C.	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-
Ge.	-	-	-	-	-	-	2	-	-	-	-	3	-	-	-
Fla.	2	-	-	-	-	-	12	1	1	-	-	1	-	-	-
E.S. CENTRAL	2	-	1	-	-	-	10	2	25	-	5	4	-	-	-
Ky.	-	-	-	-	-	-	8	-	9	-	-	-	-	-	-
Tenn.	-	-	-	-	-	-	-	1	13	-	2	3	-	-	-
Ala.	2	-	1	-	-	-	2	1	3	-	3	-	-	-	-
Miss.	-	-	-	-	-	-	-	N	N	-	-	1	-	-	-
W.S. CENTRAL	-	-	-	-	2	-	12	48	130	2	3	-	1	1	-
Ark.	-	-	-	-	2	-	1	9	21	-	1	-	-	-	-
La.	-	-	-	-	-	-	1	17	27	-	-	-	1	1	-
Okla.	-	-	-	-	-	-	2	4	44	2	2	-	-	-	-
Tex.	-	-	-	-	-	-	8	18	38	-	-	-	-	-	-
MOUNTAIN	8	-	13	-	1	35	5	3	11	-	77	11	-	1	1
Mont.	-	-	12	-	1	-	-	-	-	-	-	-	-	-	-
Idaho	2	-	-	-	-	-	-	1	2	-	6	7	-	-	-
Wyo.	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Colo.	-	-	-	-	-	35	3	-	2	-	1	-	-	-	-
N. Mex.	1	-	-	-	-	-	-	N	N	-	1	-	-	-	-
Ariz.	1	-	1	-	-	-	2	2	5	-	68	1	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1
Nev.	3	-	-	-	-	-	-	-	2	-	1	-	-	1	1
PACIFIC	28	11	45	-	-	44	73	8	44	2	31	34	-	12	10
Wash.	1	-	-	-	-	-	4	3	5	-	1	3	-	-	-
Oreg.	1	-	-	-	-	-	4	N	N	-	-	-	-	-	-
Calif.	24	11	45	-	-	43	63	5	37	2	30	21	-	12	9
Alaska	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	1	-	-	2	-	-	10	-	-	1
Guam	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
P.R.	-	4	14	-	-	-	1	-	-	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International ‡Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 4, 1989 and February 6, 1988 (5th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic- shock Syndrome	Tuberculosis		Tulsa- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	3,011	3,299	30	1,494	1,348	6	25	8	295
NEW ENGLAND	206	91	1	36	19	-	6	-	-
Maine	-	2	1	1	2	-	-	-	-
N.H.	-	1	-	4	-	-	-	-	-
Vt.	-	-	-	1	-	-	-	-	-
Mass.	64	34	-	6	8	-	1	-	-
R.I.	31	3	-	9	1	-	4	-	-
Conn.	111	51	-	15	8	-	1	-	-
MID. ATLANTIC	400	692	3	341	348	1	4	2	58
Upstate N.Y.	38	55	-	12	63	-	-	-	-
N.Y. City	198	469	1	246	183	-	3	-	-
N.J.	143	76	-	36	60	-	-	-	-
Pa.	21	92	2	47	52	1	1	2	58
E.N. CENTRAL	147	89	3	194	186	-	2	1	7
Ohio	5	5	3	45	36	-	-	1	-
Ind.	4	11	-	6	12	-	-	-	-
Ill.	73	46	-	74	72	-	-	-	2
Mich.	63	24	-	62	54	-	1	-	1
Wis.	2	3	-	7	9	-	1	-	4
W.N. CENTRAL	31	13	3	46	35	1	2	1	35
Minn.	2	1	1	9	9	-	-	-	13
Iowa	7	2	-	7	3	-	2	1	-
Mo.	13	4	-	13	14	1	-	-	2
N. Dak.	-	1	-	2	1	-	-	-	2
S. Dak.	-	-	1	5	8	-	-	-	12
Nebr.	9	2	-	1	-	-	-	-	3
Kans.	-	3	1	9	-	-	-	-	3
S. ATLANTIC	1,219	1,137	2	252	270	-	1	2	86
Del.	6	17	-	-	3	-	-	-	-
Md.	54	56	-	20	30	-	-	1	17
D.C.	96	49	-	21	10	-	-	-	-
Va.	57	33	-	36	41	-	-	-	28
W. Va.	3	1	-	7	7	-	-	-	7
N.C.	65	68	2	19	9	-	1	1	17
S.C.	62	45	-	42	43	-	-	-	17
Ga.	264	186	-	29	14	-	-	-	17
Fla.	612	682	-	78	113	-	-	-	-
E.S. CENTRAL	194	186	-	105	121	1	-	2	17
Ky.	4	3	-	41	40	1	-	2	7
Tenn.	56	51	-	16	18	-	-	-	3
Ala.	84	73	-	47	47	-	-	-	7
Miss.	50	59	-	1	16	-	-	-	-
W.S. CENTRAL	326	350	-	106	78	1	1	-	47
Ark.	37	2	-	14	5	-	-	-	3
La.	79	50	-	7	19	-	-	-	-
Okl.	4	16	-	1	17	1	-	-	5
Tex.	206	290	-	84	37	-	1	-	39
MOUNTAIN	79	70	3	43	23	-	-	-	7
Mont.	-	2	-	-	-	-	-	-	6
Idaho	-	-	1	1	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-
Colo.	4	13	-	-	9	-	-	-	-
N. Mex.	1	7	1	8	6	-	-	-	-
Ariz.	24	12	1	28	6	-	-	-	1
Utah	4	4	-	6	2	-	-	-	-
Nev.	46	32	-	6	2	-	-	-	-
PACIFIC	408	663	5	371	269	2	9	-	38
Wash.	-	18	-	14	13	-	-	-	-
Oreg.	26	14	-	10	12	-	-	-	-
Calif.	383	627	5	326	224	2	9	-	29
Alaska	-	-	-	4	3	-	-	-	9
Hawaii	-	4	-	17	17	-	-	-	-
Guam	-	-	-	-	-	-	-	-	-
P.R.	22	69	-	6	11	-	-	-	3
V.I.	1	1	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	1	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending February 4, 1989 (5th Week)

Reporting Area	All Causes, By Age (Years)						P&I**	Total	Reporting Area	All Causes, By Age (Years)						P&I**	Total
	All Ages	>65	45-64	25-44	1-24	<1				All Ages	>65	45-64	25-44	1-24	<1		
NEW ENGLAND	686	475	141	39	15	15	63		S. ATLANTIC	1,310	778	289	151	38	54	62	
Boston, Mass.	198	126	46	12	8	6	33		Atlanta, Ga.	209	123	47	30	8	1	5	
Bridgeport, Conn.	50	40	5	2	3	-	1		Baltimore, Md.	242	144	58	26	6	8	6	
Cambridge, Mass.	33	25	5	3	-	-	2		Charlotte, N.C.	77	53	12	8	1	3	7	
Fall River, Mass.	39	28	10	1	-	-	1		Jacksonville, Fla.	130	81	32	10	3	4	5	
Hartford, Conn.	62	39	17	5	1	-	3		Miami, Fla.	122	73	23	23	3	-	1	
Lowell, Mass.	30	17	8	1	-	-	4		Norfolk, Va.	53	30	11	1	3	8	2	
Lynn, Mass.	20	12	7	1	-	-	2		Richmond, Va.	72	41	18	8	2	3	6	
New Bedford, Mass.	24	18	2	4	-	-	2		Savannah, Ga.	57	28	16	5	1	7	11	
New Haven, Conn.	43	28	10	2	1	2	-		St. Petersburg, Fla.	66	49	12	3	2	-	8	
Providence, R.I.	41	29	8	3	1	-	4		Tampa, Fla.	81	58	14	2	1	6	6	
Somerville, Mass.	6	4	1	1	-	-	1		Washington, D.C.	178	82	42	32	8	14	5	
Springfield, Mass.	41	30	8	1	1	-	6		Wilmington, Del.	23	16	4	3	-	-	-	
Waterbury, Conn.	33	28	2	3	-	-	2		E.S. CENTRAL	887	596	182	45	28	36	80	
Worcester, Mass.	65	51	12	-	-	2	4		Birmingham, Ala.	133	84	30	10	1	8	5	
MID. ATLANTIC	2,885	1,928	530	286	73	66	170		Chattanooga, Tenn.	68	50	12	2	4	-	7	
Albany, N.Y.	38	27	5	4	1	-	1		Knoxville, Tenn.	94	72	17	2	1	2	9	
Allentown, Pa.	17	14	3	-	-	-	3		Louisville, Ky.	103	79	11	7	4	2	8	
Buffalo, N.Y.	100	73	24	1	-	2	9		Memphis, Tenn.	208	127	49	6	8	18	33	
Camden, N.J.	45	28	8	5	1	3	3		Mobile, Ala.	69	53	11	2	2	1	5	
Elizabeth, N.J.	51	31	7	2	-	-	1		Montgomery, Ala.	84	44	14	2	3	1	2	
Erie, Pa.	51	41	7	1	1	1	9		Nashville, Tenn.	148	87	38	14	5	4	11	
Jersey City, N.J.	79	59	12	7	-	1	11		W.S. CENTRAL	1,809	1,139	379	192	54	45	104	
N.Y. City, N.Y.	1,619	1,031	313	192	47	36	67		Austin, Tex.	84	60	11	9	2	2	9	
Newark, N.J.	84	42	18	16	5	3	6		Baton Rouge, La.	25	19	4	2	-	-	-	
Petersen, N.J.	33	17	8	6	1	1	2		Corpus Christi, Tex.	48	37	10	1	-	-	1	
Philadelphia, Pa.	333	234	52	25	11	11	17		Dallas, Tex.	205	105	45	34	7	14	10	
Pittsburgh, Pa.	71	47	16	5	-	3	4		El Paso, Tex.	73	41	17	11	1	3	8	
Reading, Pa.	128	86	5	-	-	1	9		Fort Worth, Tex.	117	79	29	6	2	1	7	
Rochester, N.Y.	17	13	3	-	-	1	2		Houston, Tex.	734	436	169	89	24	16	18	
Schenectady, N.Y.	42	26	8	1	-	-	12		Little Rock, Ark.	70	44	13	4	7	2	5	
Scranton, Pa.	34	29	3	1	1	-	3		New Orleans, La.	87	54	17	11	4	1	-	
Syracuse, N.Y.	82	67	10	3	1	1	8		San Antonio, Tex.	210	148	38	16	6	2	23	
Trenton, N.J.	46	24	15	6	1	-	3		Shreveport, La.	53	37	10	3	1	2	9	
Utica, N.Y.	22	18	-	2	2	-	1		Tulsa, Okla.	103	79	16	6	-	2	14	
Yonkers, N.Y.	23	20	1	2	-	-	1		MOUNTAIN	813	517	164	58	44	29	47	
E.N. CENTRAL	2,483	1,663	499	171	59	80	140		Albuquerque, N. Mex.	95	52	16	12	10	4	7	
Akron, Ohio	67	55	10	1	1	-	-		Colorado Springs, Colo.	48	31	7	2	4	4	3	
Canton, Ohio	46	35	10	1	-	-	5		Denver, Colo.	125	63	32	6	3	1	3	
Chicago, Ill.	564	362	125	45	10	22	16		Las Vegas, Nev.	133	74	37	11	9	2	12	
Cincinnati, Ohio	145	96	30	11	4	4	23		Ogden, Utah	22	16	4	1	-	1	3	
Cleveland, Ohio	160	104	35	13	3	5	10		Phoenix, Ariz.	185	121	28	10	11	15	5	
Columbus, Ohio	152	92	32	11	6	11	1		Pueblo, Colo.	32	24	5	1	2	-	4	
Dayton, Ohio	120	86	24	5	2	3	12		Salt Lake City, Utah	50	32	8	7	3	-	1	
Detroit, Mich.	251	147	55	27	11	10	6		Tucson, Ariz.	123	84	27	8	2	2	9	
Evansville, Ind.	53	38	10	4	-	1	2		PACIFIC	2,537	1,765	426	201	65	86	244	
Fort Wayne, Ind.	76	53	13	9	1	-	8		Berkeley, Calif.	26	16	8	2	-	-	-	
Gary, Ind.	24	14	7	3	-	-	1		Fresno, Calif.	126	79	26	10	3	8	13	
Grand Rapids, Mich.	84	58	15	7	-	4	11		Glendale, Calif.	49	39	5	3	2	-	4	
Indianapolis, Ind.	200	146	33	12	5	4	6		Honolulu, Hawaii	84	61	13	9	-	1	18	
Madison, Wis.	33	20	8	2	1	2	2		Long Beach, Calif.	116	84	19	7	2	4	25	
Milwaukee, Wis.	131	107	16	2	1	5	13		Los Angeles, Calif.	840	593	129	70	26	11	66	
Peoria, Ill.	62	39	13	2	3	5	6		Oakland, Calif.	97	63	18	8	3	5	5	
Rockford, Ill.	39	20	12	4	2	1	8		Pasadena, Calif.	35	23	6	4	1	1	4	
South Bend, Ind.	41	35	5	1	-	-	2		Portland, Oreg.	161	118	28	6	4	5	12	
Toledo, Ohio	135	101	19	8	5	2	1		Sacramento, Calif.	146	104	20	13	3	6	20	
Youngstown, Ohio	80	55	17	3	4	1	7		San Diego, Calif.	153	113	26	10	1	-	22	
W.N. CENTRAL	920	660	171	48	19	22	72		San Francisco, Calif.	209	121	48	31	3	6	13	
Des Moines, Iowa	71	55	11	3	1	1	5		San Jose, Calif.	240	178	39	12	3	8	24	
Duluth, Minn.	26	17	7	2	-	-	4		Seattle, Wash.	138	91	24	11	4	8	7	
Kansas City, Kans.	32	19	5	4	4	-	4		Spokane, Wash.	68	45	7	4	10	2	4	
Kansas City, Mo.	143	103	28	10	1	1	11		Tacoma, Wash.	49	37	10	1	-	1	7	
Lincoln, Nebr.	36	28	6	2	-	-	7		TOTAL	14,309**	9,521	2,771	1,193	395	413	982	
Minneapolis, Minn.	272	186	60	15	4	7	25										
Omaha, Nebr.	100	68	22	4	5	1	7										
St. Louis, Mo.	148	115	16	4	4	9	8										
St. Paul, Minn.	58	46	7	2	-	3	1										
Wichita, Kans.	34	23	9	2	-	-	1										

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

ACIP: Pneumococcal Polysaccharide — Continued

shown to have rapid decline in pneumococcal antibody levels (e.g., patients with nephrotic syndrome, renal failure, or transplant recipients). Revaccination after 3–5 years should be considered for children with nephrotic syndrome, asplenia, or sickle cell anemia who would be ≤ 10 years old at revaccination.

STRATEGIES FOR VACCINE DELIVERY

Recommendations for pneumococcal vaccination have been made by the ACIP, the American Academy of Pediatrics, the American College of Physicians, and the American Academy of Family Physicians. Recent analysis indicates that pneumococcal vaccination of elderly persons is cost-effective (39). The vaccine is targeted for approximately 27 million persons aged ≥ 65 years and 21 million persons aged < 65 years with high-risk conditions (1). Despite Medicare reimbursement for costs of the vaccine and its administration, which began in 1981, annual use of pneumococcal vaccine has not increased above levels observed in earlier years (40) (Figure 1). In 1985, $< 10\%$ of the 48 million persons considered to be at increased risk of serious pneumococcal infection were estimated to have ever received pneumococcal vaccine (1).

Opportunities to vaccinate high-risk persons are missed both at time of hospital discharge and during visits to clinicians' offices. Two thirds or more of patients with serious pneumococcal disease had been hospitalized at least once within 5 years before their pneumococcal illness, yet few had received pneumococcal vaccine (40).

TABLE 2. Reactions to revaccination with pneumococcal vaccine

Study	Vaccinees			Revaccination period	Reactions
	Condition	Age	No.		
Borgono, et al. 1978 (33)	Normal	Adults	7	13 mos	Increase in local reactions
Carlson, et al. 1979 (34)	Normal	21–62 yrs	23	12–18 mos	Increase in local reactions
Rigau-Perez, et al. 1983 (35)	Sickle cell disease	≥ 3 yrs	28	28–35 mos	No increase in reactions compared with primary vaccination
Lawrence, et al. 1983 (36)	Normal	2–5 yrs	52	35 mos (mean)	Increase in local reactions
Mufson, et al. 1984 (37)	Normal	23–40 yrs	12	24–48 mos	No increase in reactions compared with primary vaccination
Weinrub, et al. 1984 (17)	Sickle cell disease	10–27 yrs	17	8–9 yrs	No "serious" local reactions
Kaplan, et al. 1986 (38)	Sickle cell disease	4–23 yrs	86	37–53 mos	Four "severe" reactions*

*Severe reaction was defined as presence of local pain, redness, swelling, and axillary temperature > 100 F (37.8 C); two patients aged 21 and 23 years had temperatures of 102 F (38.9 C).

ACIP: Pneumococcal Polysaccharide - Continued

More effective programs for vaccine delivery are needed, including offering pneumococcal vaccine in hospitals (at the time of discharge), clinicians' offices, nursing homes, and other chronic-care facilities. Many patients who receive pneumococcal vaccine should also be immunized with influenza vaccine (41), which can be given simultaneously at a different site. In contrast to pneumococcal vaccine, influenza vaccine is given annually.

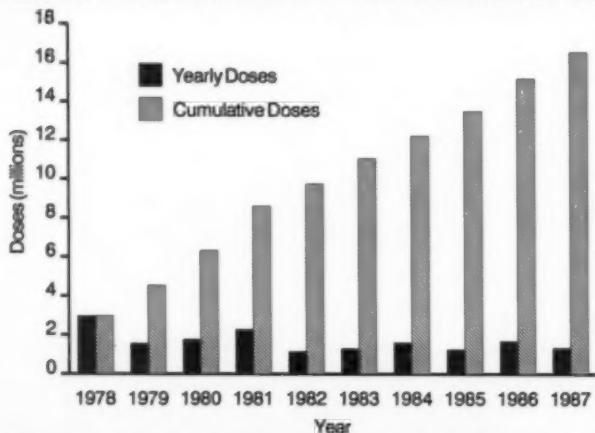
VACCINE DEVELOPMENT

A more immunogenic pneumococcal vaccine preparation is needed, particularly for children <2 years old. The development of a protein-polysaccharide conjugate vaccine for selected capsular types holds promise.

References

1. Williams WW, Hickson MA, Kane MA, Kendal AP, Spika JS, Hinman AR. Immunization policies and vaccine coverage among adults: the risk for missed opportunities. *Ann Intern Med* 1988;108:616-25.
2. Research Committee of the British Thoracic Society and the Public Health Laboratory Service. Community-acquired pneumonia in adults in British hospitals in 1982-1983: a survey of aetiology, mortality, prognostic factors and outcome. *Quart J Med* 1987; 62:195-220.
3. Istre GR, Tarpay M, Anderson M, Pryor A, Welch D, Pneumococcus Study Group. Invasive disease due to *Streptococcus pneumoniae* in an area with a high rate of relative penicillin resistance. *J Infect Dis* 1987;156:732-5.
4. Breiman RF, Navarro VJ, Darden PM, Darby CP, Spika JS. *Streptococcus pneumoniae* bacteremia in residents of Charleston County, South Carolina, a decade later [Abstract]. In: Program and abstracts of the 28th Interscience Conference on Antimicrobial Agents and Chemotherapy. Washington, DC: American Society for Microbiology, 1988:343.
5. Davidson M, Schraer CD, Parkinson AJ, et al. Invasive pneumococcal disease in an Alaska Native population, 1980 through 1986. *JAMA* 1989;261:715-8.
6. Polsky B, Gold JWM, Whimbey E, et al. Bacterial pneumonia in patients with the acquired immunodeficiency syndrome. *Ann Intern Med* 1986;104:38-41.

FIGURE 1. Pneumococcal vaccine distribution - United States, 1978-1987*



*Data for 1978-1985 were obtained from reference 40. Data for 1986 and 1987 were obtained from Lederle Laboratories and Merck Sharp & Dohme (net doses distributed).

ACIP: Pneumococcal Polysaccharide — Continued

7. Simberkoff MS, Sadr WE, Schiffman G, Rahal JJ. *Streptococcus pneumoniae* infections and bacteremia in patients with acquired immune deficiency syndrome, with report of a pneumococcal vaccine failure. *Am Rev Respir Dis* 1984;130:1174-6.
8. Stover DE, White DA, Romano PA, Gellene RA, Robeson WA. Spectrum of pulmonary diseases associated with the acquired immune deficiency syndrome. *Am J Med* 1985; 78:429-37.
9. Lane CH, Masur H, Edgar LC, Whalen G, Rook AH, Fauci AS. Abnormalities of B-cell activation and immunoregulation in patients with the acquired immunodeficiency syndrome. *N Engl J Med* 1983;309:453-8.
10. Ammann AJ, Schiffman G, Abrams D, Volberding P, Ziegler J, Conant M. B-cell immunodeficiency in acquired immune deficiency syndrome. *JAMA* 1984;251:1447-9.
11. Robbins JB, Austrian R, Lee C-J, et al. Considerations for formulating the second-generation pneumococcal capsular polysaccharide vaccine with emphasis on the cross-reactive types within groups. *J Infect Dis* 1983;148:1136-59.
12. Douglas RM, Paton JC, Duncan SJ, Hansman DJ. Antibody response to pneumococcal vaccination in children younger than five years of age. *J Infect Dis* 1983;148:131-7.
13. Leinonen M, Säkkinen A, Kalliokoski R, Luotinen J, Timonen M, Mäkelä PH. Antibody response to 14-valent pneumococcal capsular polysaccharide vaccine in pre-school age children. *Pediatr Infect Dis* 1986;5:39-44.
14. Mufson MA, Krause HE, Schiffman G. Long-term persistence of antibody following immunization with pneumococcal polysaccharide vaccine. *Proc Soc Exp Biol Med* 1983; 173:270-5.
15. Mufson MA, Krause HE, Schiffman G, Hughey DF. Pneumococcal antibody levels one decade after immunization of healthy adults. *Am J Med Sci* 1987;293:279-84.
16. Giebink GS, Le CT, Schiffman G. Decline of serum antibody in splenectomized children after vaccination with pneumococcal capsular polysaccharides. *J Pediatr* 1984;105:576-84.
17. Weintrub PS, Schiffman G, Addiego JE Jr, et al. Long-term follow-up and booster immunization with polyvalent pneumococcal polysaccharide in patients with sickle cell anemia. *J Pediatr* 1984;105:261-3.
18. Spika JS, Halsey NA, Le CT, et al. Decline of vaccine-induced antipneumococcal antibody in children with nephrotic syndrome. *Am J Kidney Dis* 1986;7:466-70.
19. Ballet J-J, Sulcebe G, Couderc L-J, et al. Impaired anti-pneumococcal antibody response in patients with AIDS-related persistent generalized lymphadenopathy. *Clin Exp Immunol* 1987;68:479-87.
20. Huang K-L, Ruben FL, Rinaldo CR Jr, Kingsley L, Lyter DW, Ho M. Antibody responses after influenza and pneumococcal immunization in HIV-infected homosexual men. *JAMA* 1987;257:2047-50.
21. Austrian R, Douglas RM, Schiffman G, et al. Prevention of pneumococcal pneumonia by vaccination. *Trans Assoc Am Physicians* 1976;89:184-94.
22. Riley ID, Tarr PI, Andrews M, et al. Immunisation with a polyvalent pneumococcal vaccine: reduction of adult respiratory mortality in a New Guinea Highlands community. *Lancet* 1977;1:1338-41.
23. Ammann AJ, Addiego J, Wara DW, Lubin B, Smith WB, Mentzer WC. Polyvalent pneumococcal-polysaccharide immunization of patients with sickle-cell anemia and patients with splenectomy. *N Engl J Med* 1977;297:897-900.
24. Austrian R. Surveillance of pneumococcal infection for field trials of polyvalent pneumococcal vaccines. Bethesda, Maryland: National Institutes of Health, National Institute of Allergy and Infectious Diseases, 1980; report no. DAB-VDP-12-84.
25. Shapiro ED, Clemens JD. A controlled evaluation of the protective efficacy of pneumococcal vaccine for patients at high risk of serious pneumococcal infections. *Ann Intern Med* 1984;101:325-30.
26. Shapiro ED, Austrian R, Adair RK, Clemens JD. The protective efficacy of pneumococcal vaccine [Abstract]. *Clin Res* 1988;36:470A.
27. Sims RV, Steinmann WC, McConville JH, King LR, Zwick WC, Schwartz JS. The clinical effectiveness of pneumococcal vaccine in the elderly. *Ann Intern Med* 1988;108:653-7.
28. Forrester HL, Jahnigen DW, LaForce FM. Inefficacy of pneumococcal vaccine in a high-risk population. *Am J Med* 1987;83:425-30.
29. Bolan G, Broome CV, Facklam RR, Plikaytis BD, Fraser DW, Schlech WF III. Pneumococcal vaccine efficacy in selected populations in the United States. *Ann Intern Med* 1986;104:1-6.

ACIP: Pneumococcal Polysaccharide — Continued

30. Simberkoff MS, Cross AP, Al-Ibrahim M, et al. Efficacy of pneumococcal vaccine in high-risk patients: results of a Veterans Administration cooperative study. *N Engl J Med* 1986; 315:1318-27.
31. Shapiro ED. Pneumococcal vaccine failure [Letter]. *N Engl J Med* 1987;316:1272-3.
32. Gaillat J, Zmirou D, Mallaret MR, et al. Essai clinique du vaccin antipneumococcique chez des personnes âgées vivant en institution. *Rev Epidemiol Sante Publique* 1985;33:437-44.
33. Borgoño JM, McLean AA, Vella PP, et al. Vaccination and revaccination with polyvalent pneumococcal polysaccharide vaccines in adults and infants. *Proc Soc Exper Biol Med* 1978;157:148-54.
34. Carlson AJ, Davidson WL, McLean AA, et al. Pneumococcal vaccine: dose, revaccination, and coadministration with influenza vaccine. *Proc Soc Exper Biol Med* 1979;161:558-63.
35. Rigau-Perez JG, Overturf GD, Chan LS, Weiss J, Powars D. Reactions to booster pneumococcal vaccination in patients with sickle cell disease. *Pediatr Infect Dis* 1983;2:199-202.
36. Lawrence EM, Edwards KM, Schiffman G, Thompson JM, Vaughn WK, Wright PF. Pneumococcal vaccine in normal children. *Am J Dis Child* 1983;137:846-50.
37. Mufson MA, Krause HE, Schiffman G. Reactivity and antibody responses of volunteers given two or three doses of pneumococcal vaccine. *Proc Soc Exper Biol Med* 1984;177:220-5.
38. Kaplan J, Sarnaik S, Schiffman G. Revaccination with polyvalent pneumococcal vaccine in children with sickle cell anemia. *Am J Pediatr Hematol Oncol* 1986;8:80-2.
39. Sisk JE, Riegelman RK. Cost effectiveness of vaccination against pneumococcal pneumonia: an update. *Ann Intern Med* 1986;104:79-86.
40. Fedson DS. Influenza and pneumococcal immunization strategies for physicians. *Chest* 1987;91:436-43.
41. ACIP. Prevention and control of influenza. *MMWR* 1988;37:361-4,369-73.

Notices to Readers

Publication of NIOSH Current Intelligence Bulletin on Carcinogenic Effects of Diesel Exhaust

In August 1988, the National Institute for Occupational Safety and Health (NIOSH) issued *Current Intelligence Bulletin No. 50: Carcinogenic Effects of Exposure to Diesel Exhaust*. This publication is one of a series of bulletins that provide new information or update data on chemical substances, physical agents, or safety hazards found in the workplace. *Current Intelligence Bulletin No. 50*, which is summarized below, is now available to the public.*

This document disseminates recent information on the potential carcinogenicity of diesel exhaust. Approximately 1.35 million workers are occupationally exposed to the combustion products of diesel fuel in approximately 80,000 workplaces in the United States. Workers most likely to be exposed to diesel exhaust are forklift and truck drivers; workers in mines, tunnels, and maintenance garages (auto, truck, or bus); and workers on bridges, farms, loading docks, and railroads.

In 1986, NIOSH concluded that no causal relationship had been established between exposure to diesel exhaust and cancer but that such a relationship was plausible on the basis of animal studies involving extracts of diesel exhaust particulates. Since 1986, animal studies have confirmed the potential carcinogenicity of whole (unfiltered) diesel exhaust, and limited epidemiologic evidence has associated

*Copies can be obtained without charge from the Publications Dissemination Section, Division of Standards Development and Technology Transfer, NIOSH, 4676 Columbia Parkway, Cincinnati, Ohio 45226; telephone: (513) 533-8287.

Diesel Exhaust — Continued

occupational exposure to diesel exhaust with lung cancer. NIOSH therefore recommends that diesel exhaust be regarded as a potential occupational carcinogen in conformance with the Occupational Safety and Health Administration (OSHA) Cancer Policy (29 CFR §1990).

Diesel exhaust is a complex and varying mixture of compounds encountered in a multitude of environmental settings. Because technology and test methods are limited, NIOSH cannot confidently recommend 1) methods for environmental monitoring of exposures or 2) control measures for adequately reducing the carcinogenic risks of occupational exposure to diesel exhaust. The excess risk of cancer has not been quantitatively estimated for workers exposed to diesel exhaust, but minimizing exposure should reduce the risk. As a prudent public health policy, employers should assess the conditions under which workers may be exposed to diesel exhaust and reduce exposures to the lowest feasible concentrations.

Reported by: Div of Standards Development and Technology Transfer, National Institute for Occupational Safety and Health, CDC.

New Phone Number for MMWR Information

The Production Offices of the *MMWR* series have a new phone number to provide information on subscriptions, published or submitted articles, HIV-related articles, statistics, supplements, surveillance summaries, summaries of notifiable diseases, and the annual index. The number is (404) 332-4555.

MMWR Serial Publications, Vol. 37, 1988

The following documents have been published as part of *MMWR* Vol. 37. For information regarding purchase of these documents, contact the U.S. Government Printing Office (telephone [202] 783-3238) or MMS Publications (telephone [617] 893-3800). For additional questions, contact Editorial Services, Epidemiology Program Office, CDC (telephone [404] 332-4555).

Supplements:

Guidelines for the Prevention and Control of Congenital Syphilis (Vol. 37, No. S-1, January 15, 1988).

Guidelines for Effective School Health Education to Prevent the Spread of AIDS (Vol. 37, No. S-2, January 29, 1988).

Management of Patients with Suspected Viral Hemorrhagic Fever (Vol. 37, No. S-3, February 26, 1988).

1988 Agent Summary Statement for Human Immunodeficiency Virus and Report on Laboratory-Acquired Infection with Human Immunodeficiency Virus (Vol. 37, No. S-4, April 1, 1988).

Guidelines for Evaluating Surveillance Systems (Vol. 37, No. S-5, May 6, 1988).

CDC Recommendations for a Community Plan for the Prevention and Containment of Suicide Clusters (Vol. 37, No. S-6, August 19, 1988).

Serial Publications — Continued

NIOSH Recommendations for Occupational Safety and Health Standards 1988 (Vol. 37, No. S-7, August 26, 1988).

CDC Surveillance Summaries:

Public Health Surveillance of 1990 Injury Control Objectives for the Nation (Vol. 37, No. SS-1, February 1988)

Introduction: Moving from the 1990 Injury Control Objectives to State and Local Surveillance Systems;

Deaths from Motor Vehicle-Related Injuries, 1978-1984;

Deaths due to Injury in the Home among Persons under 15 Years of Age, 1970-1984;

Deaths from Falls, 1978-1984;

Drownings in the United States, 1978-1984;

Hospitalizations due to Tap Water Scalds, 1978-1985;

Deaths from Residential Fires, 1978-1984;

Unintentional Firearm-Related Fatalities, 1970-1984;

Homicides among Black Males 15-24 Years of Age, 1970-1984;

Suicides among Persons 15-24 Years of Age, 1970-1984.

Vol. 37, No. SS-2, June 1988

Campylobacter Isolates in the United States, 1982-1986;

Water-Related Disease Outbreaks, 1985;

Salmonella Isolates from Humans in the United States, 1984-1986.

Reports on Selected Racial/Ethnic Groups (Vol. 37, No. SS-3, July 1988)

Distribution of AIDS Cases, by Racial/Ethnic Group and Exposure Category, United States, June 1, 1981-July 4, 1988;

Plague in American Indians, 1956-1987;

Leading Major Congenital Malformations among Minority Groups in the United States, 1981-1986;

Differences in Death Rates due to Injury among Blacks and Whites, 1984;

Dental Caries and Periodontal Disease among Mexican-American Children from Five Southwestern States, 1982-1983.

Rabies Surveillance, United States, 1987 (Vol. 37, No. SS-4, September 1988).

Vol. 37, No. SS-5, December 1988

Trichinosis Surveillance, United States, 1986;

Ectopic Pregnancy Surveillance, United States, 1970-1985;

Maternal Mortality Surveillance, United States, 1980-1985.

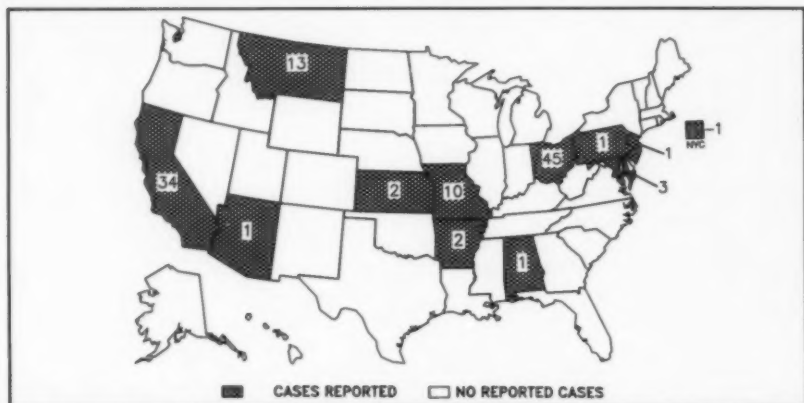
Errata: Vol. 38, No. 3

- p. 45** In the footnote to Figure 1, the title of the article cited as the source should be: "Severe acute metabolic acidosis (acute beriberi): an avoidable complication of total parenteral nutrition."

Vol. 37, No. 44

- p. 685** The next-to-last sentence of the second paragraph states that congenital ureteral obstruction is often associated with polycystic kidneys. This is incorrect. Congenital ureteral obstruction has been associated with cystic kidneys or multicystic kidneys. Polycystic kidney disease is a separate and distinct disease.

FIGURE 1. Reported measles cases — United States, Weeks 1–4, 1989



The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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